Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application. Please amend Claims 1, 7, 13, 19, 39 and 44, cancel Claims 21 – 38, and add Claims 45 – 56 so that the claims read as follows:

1. (Currently Amended) A method of performing a calculation of a function, the method comprising:

identifying a set of coefficient values associated with a function;

generating a reduced-width coefficient value by reducing ~~the~~ a data width of at least one of the coefficient values to have a first data width less than a second data width; and

storing the reduced-width coefficient value in a machine executable instruction.

2. (Original) A method as defined in claim 1, wherein the function is a polynomial.

3. (Original) A method as defined in claim 2, wherein the polynomial is an approximating polynomial that approximates at least one of a transcendental function and an algebraic function.

4. (Original) A method as defined in claim 2, wherein the reduced-width coefficient value is associated with a highest degree term of the polynomial.

5. (Original) A method as defined in claim 1, wherein storing the reduced-width coefficient value in the machine executable instruction comprises storing the reduced-width coefficient value as an immediate value.

6. (Original) A method as defined in claim 1, wherein storing the reduced-width coefficient value in the machine executable instruction comprises storing the reduced-width coefficient value in an instruction memory.

7. (Currently Amended) An apparatus for performing a calculation of a function, the apparatus comprising:

a processor system including a memory; and

instructions stored in the memory that enable the processor system to:

identify a set of coefficient values associated with a function;

generate a reduced-width coefficient value by reducing ~~the~~ a data width of at least one of the coefficient values to have a first data width less than a second data width; and

store the reduced-width coefficient value in a machine executable instruction.

8. (Original) An apparatus as defined in claim 7, wherein the function is a polynomial.

9. (Original) An apparatus as defined in claim 8, wherein the polynomial is an approximating polynomial that approximates at least one of a transcendental function and an algebraic function.

10. (Original) An apparatus as defined in claim 8, wherein the reduced-width coefficient value is associated with a highest degree term of the polynomial.

11. (Original) An apparatus as defined in claim 7, wherein the instructions stored in the memory enable the processor system to store the reduced-width coefficient value in the machine executable instruction as an immediate value.

12. (Original) An apparatus method as defined in claim 7, wherein the instructions stored in the memory enable the processor system to store the machine executable instruction in an instruction memory.

13. (Currently Amended) A machine accessible medium having instructions stored thereon that, when executed, cause a machine to:

identify a set of coefficient values associated with a function;

generate a reduced-width coefficient value by reducing ~~the~~ a data width of at least one of the coefficient values to have a first data width less than a second data width; and

store the reduced-width coefficient value in a machine executable instruction.

14. (Original) A machine accessible medium as defined in claim 13, wherein the function is a polynomial.

15. (Original) A machine accessible medium as defined in claim 14, wherein the set of coefficient values is associated with an approximating polynomial that approximates at least one of a transcendental function and an algebraic function.

16. (Original) A machine accessible medium as defined in claim 14 having instructions stored thereon that, when executed, cause the machine to generate the reduced-width coefficient value based on a highest-degree term of the polynomial.

17. (Original) A machine accessible medium as defined in claim 13 having instructions stored thereon that, when executed, cause the machine to store the reduced-width coefficient value in the machine executable instruction as an immediate value.

18. (Original) A machine accessible medium as defined in claim 13 having instructions stored thereon that, when executed, cause the machine to store the machine executable instruction in an instruction memory.

19. (Currently Amended) An apparatus for performing a calculation of a function, the apparatus comprising:

a processor system including a flash memory; and

instructions stored in the flash memory that enable the processor system to:

identify a set of coefficient values associated with a function;

generate a reduced-width coefficient value by reducing ~~the~~ a data width of at least one of the coefficient values to have a first data width less than a second data width; and

store the reduced-width coefficient value in a machine executable instruction.

20. (Original) An apparatus as defined in claim 19, wherein the function is an approximating polynomial that approximates at least one of a transcendental function and an algebraic function.

21 – 38. (Canceled).

39. (Currently Amended) An apparatus for ~~determining an evaluation value of a polynomial~~ performing a calculation, the apparatus comprising:

a reduced-width data generator configured to generate at least one reduced-width data value;

a function selector ~~communicatively coupled to~~ in communication with the reduced-width data generator and configured to select at least one function based on the at least one reduced-width data value; and

a comparator ~~communicatively coupled to~~ in communication with the reduced-width data generator and the function selector, wherein the comparator is configured to perform at least one comparison based on the at least one function.

40. (Original) An apparatus as defined in claim 39, wherein the at least one function includes an approximating polynomial.

41. (Original) An apparatus as defined in claim 40, wherein the approximating polynomial is associated with a mixed width polynomial.

42. (Original) An apparatus as defined in claim 39, wherein the at least one reduced-width data value is a short width coefficient value.

43. (Original) An apparatus as defined in claim 39, wherein the at least one reduced-width data value is a long width coefficient value.

44. (Currently Amended) An apparatus as defined in claim 39, further comprising a differentiator ~~communicatively coupled to~~ in communication with the function selector ~~that may be~~ and configured to differentiate the at least one function.

45. (New) An apparatus for performing a calculation of a function, the apparatus comprising:

processor means for processing data, wherein the processor means includes storage means for storing data; and

instruction means, stored in the storage means, for enabling the processor means to:

identify a set of coefficient values associated with a function;

generate a reduced-width coefficient value by reducing a data width of at least one of the coefficient values to have a first data width less than a second data width; and

store the reduced-width coefficient value in a machine executable instruction.

46. (New) An apparatus as defined in claim 45, wherein the function is a polynomial.

47. (New) An apparatus as defined in claim 46, wherein the polynomial is an approximating polynomial that approximates at least one of a transcendental function and an algebraic function.

48. (New) An apparatus as defined in claim 46, wherein the reduced-width coefficient value is associated with a highest degree term of the polynomial.

49. (New) An apparatus as defined in claim 45, wherein the instruction means enable the processor means to store the reduced-width coefficient value in the machine executable instruction as an immediate value.

50. (New) An apparatus method as defined in claim 45, wherein the instruction means enable the processor means to store the machine executable instruction in an instruction memory.

51. (New) An apparatus for performing a calculation, the apparatus comprising:

generator means for generating at least one reduced-width data value;

selector means, in communication with the generator means, for selecting at least one function based on the at least one reduced-width data value; and

comparing means, in communication with the generator means and the selector means, for performing at least one comparison based on the at least one function.

52. (New) An apparatus as defined in claim 51, wherein the at least one function includes an approximating polynomial.

53. (New) An apparatus as defined in claim 52, wherein the approximating polynomial is associated with a mixed width polynomial.

54. (New) An apparatus as defined in claim 51, wherein the at least one reduced-width data value is a short width coefficient value.

55. (New) An apparatus as defined in claim 51, wherein the at least one reduced-width data value is a long width coefficient value.

56. (New) An apparatus as defined in claim 51, further comprising differentiator means, in communication with the selector means, for differentiating the at least one function.